



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/469,709	12/21/1999	SHIJIAN LI	003786/PDD/C	5296

32588 7590 08/13/2003

APPLIED MATERIALS, INC.
2881 SCOTT BLVD. M/S 2061
SANTA CLARA, CA 95050

EXAMINER

GOUDREAU, GEORGE A

ART UNIT	PAPER NUMBER
----------	--------------

1763

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09-469,709

Applicant(s)

Li et al

Examiner

George Goudreau

Group Art Unit

1763

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 5-28-03 (Ce, - paper #15)

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 30-44, 59-70 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) 30-44, 60-70 is/are allowed.

☒ Claim(s) 59 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

Art Unit: 1763

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

17. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied in paragraph 17 of the previous office action.

18. Claims 30-44, and 60-70 are allowed.

19. Applicant's arguments filed 5-28-03' have been fully considered but they are not persuasive.

Applicant argues the following points regarding the examiner's rejection of their claimed subject matter.

-The prior art of record previously used to reject claim 59 can no longer be used to reject amended claim 59 due to the failure of the prior art to disclose all of the claimed features

Art Unit: 1763

of claim 59. This includes the disclosure of a two step cmp polishing process for polishing Cu in which the first cmp process step is conducted with about (0.05-0.2) wt. % of an inhibitor, and the second cmp process step is conducted with about (0.5-1.0) wt. % of an inhibitor.; and

-The prior art of record used to reject claim 59 can not be combined as done by the examiner in his previous rejection of claim 59 since the two references used by the examiner to reject claim 59 teach away from one another. That is the primary reference used by the examiner employs a cmp slurry which contains an abrasive while the secondary reference does not employ a cmp slurry which contains an abrasive. The examiner must disagree.

-The prior art of record which was previously used to reject claim 59 can be used to reject newly amended claim 59 contrary to what applicant purports based upon the following. The secondary reference used by the examiner to reject claim 59 teaches the usage of a cmp polishing process for cmp polishing Cu in which an inhibitor is employed in the cmp slurry. The examiner has provided sufficient motivation for conducting a two step cmp process for planarizing the Cu layer in which the first step is conducted at a higher polishing rate than the second step based upon the primary reference in combination with the secondary reference. Applicant's usage of the term about to describe the concentration of their inhibitor in the first, and second cmp polishing steps fails to distinguish the claimed process from one in which the same concentration of inhibitor is

Art Unit: 1763

used in both the first cmp step, and the second cmp step. This is based upon the fact that the concentration claimed in the first cmp step of about 0.2 % can be considered the same as the concentration which was claimed in the second cmp step of about 0.5 %. Thus, a two step cmp process for cmp polishing Cu in which the concentration of the inhibitor in the cmp slurry used in both the first, and the second cmp polishing steps is approximately (0.2- 0.5) wt. % would read on applicant's claimed invention. Further, applicant has failed to overcome the prima facie case which was previously made by the examiner that these claimed concentrations of the inhibitor in the cmp slurry which is used in both the first, and second cmp step were prima facie obvious since no proper showing of unexpected results as related to these claimed concentrations has been made by the applicant.; and

-The fact that the primary reference used by the examiner to reject claim 59 contains no abrasive particles while the secondary reference used by the examiner to reject claim 59 is irrelevant to whether the teachings of these two references can be combined. This is based upon the fact that it is well known in the cmp polishing art that the abrasive action which occurs during a cmp polishing process may be supplied by either using a cmp slurry which contains no abrasive particles in combination with a cmp polishing pad which does contain abrasive particles or by using a cmp slurry which does contain abrasive particles in combination with a cmp polishing pad which does not contain abrasive particles. The supplying of the abrasive action during the cmp polishing process by using a cmp slurry

Art Unit: 1763

which contains abrasive particles versus the usage of an abrasive pad which contains abrasive particles simply represents the usage of an alternative, and at least equivalent means for supplying abrasive action during a cmp polishing process.

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner George A. Goudreau whose telephone number is (703) -308-1915. The examiner can normally be reached on Monday through Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Examiner Gregory Mills, can be reached on (703) -308-1633. The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) -306-3186.

Application/Control Number: 09/469,709

Page 6

Art Unit: 1763

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) -308-0661.


George A. Goudreau/gag

Primary Examiner

AU 1763